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AUTHOR McDowell, Earl E.; And Others
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ABSTRACT

A study investigated listening and oral communication apprehension in high school and college students from the United States and Australia. The subjects were 355 students from the United States (133 high school females, 109 high school males, 65 college females, and 46 college males), and 339 students from Australia (73 high school females, 91 high school males, 112 college females, and 63 college males). The results revealed significant differences between high school students from the United States and Australia on the Personal Report of Communication Apprehension and on the Receiver Apprehension Test. Similar results occurred when analyzing the college data. The findings indicated Australian high school and college students had greater listening apprehension than students from the United States. High school students from the United States and college students from Australia had higher oral communication apprehension scores. Overall, females from both countries were more apprehensive than were males. (RL)

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# An Investigation of Source and Receiver Apprehension Between United States and Australian Students at the High School and College Levels

by

Earl E. McDowell
Department of Rhetoric
University of Minnesota
St. Paul, Minnesota

Carlene E. McDowell
Language Arts Department
Burnsville High School
Burnsville, Minnesota

Geoffery Pullan
Department of Drama and Screen Studies
Salisbury CAE
Smith's Road
Salisbury East. South Australia

Kay Lindbergs
Department of Drama and Screen Studies
Salisbury CAE
Smith's Road
Salisbury East. South Australia

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For approximately the last fifty years researchers have investigated the construct of "speech anxiety" or "stage fright."[1] Basically these investigations have focused on fear of public speaking. It was not until 1969 that the Speech Communication Association Ad Hoc Committee on Evaluation suggested that a broad-based instrument be developed to measure speech apprehension at various age levels. Shortly after this McCroskey developed the Personal Report of Communciation Apprehension (PRCA).[2] The initial studies revealed that between 15 and 20 percent of the United States college students suffer from debilitating oral communication apprehension. Other research by Daly indicated that high communication apprehension affects between 5 and 30 percent of the population.[3]

This study investigates apprehension about oral communciation and listening among selected high school and college students from the United States and Australia. The purposes of the study are to determine similarities and differences between high school and college students who represent these countries. Past research completed by Kloph and Cambra at the University of Hawaii revealed that Untied States students scored significantly higher on the PRCA than Australian students. The post hoc analysis they completed utilizing mainland students revealed no significant differences between Untied States and Australian students.[4] Other research by Hanford, et al, indicated a mean of 62.5 on the twenty-item PRCA instrument for a large sample of Australian college students. This result is approximately the same as the mean for United States college students.[5]

Based on a thorough review of literature no research has been completed to determine differences between high school students from the two

countries on PRCA scores and only one study has been completed at the college level. In addition, no research has been completed to determine differences between high school students or college students on the Receiver Apprehension Test (RAT).[6] Since the average person spends about 40-50 percent of communication time in listening,[7] receiver apprehension should be an area of concern in understanding the communication behaviors of students from both countries.

The review of literature indicates that past researchers have used composite PRCA scores and RAT scores to determine whether students experience oral communication and/or receiver apprehension. The composite scores fail to reveal in which situations the students experience high apprehension.[8] An analysis of each item might reveal that no significant differences exist on composite scores between students from the United States and Australia, but that students from the two countries might be apprehensive in different oral communication and listening situations. For example, a student from the United States may be highly apprehensive in small group situations. Likewise, because of the different teaching strategies utilized in the two countries, students from the United States may be more apprehensive when listening to lectures while students from Australia may be more apprehensive when listening in small group situations.

Specifically, this study attempts to determine (1) if students from the high school and college levels, (2) if males and females, and (3) if students from the United States and Australia differ significantly in terms of their attitude toward each item on the PRCA and RAT.* The study also attempts to determine differences between educational levels, between sexes, between countries and interaction effects between educational levels and

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The motivation for the study developed through dialogue between United States and Australian sppech-communication teachers at the Oral Communication Conference held at Armidale College, Armidale,Australia, July, 1979.

sexes, between educational levels and countries, between sexes and countries, and between educational levels, sexes and countries on composite PRCA and RAT scores.

The null hypotheses are:

1. There will be no differences between the means of senior high and college students from the United States and Australia in rating PRCA and RAT items.

2. There will be no differences between the means for males from the United States and Australia at the senior high and college levels in rating PRCA and RAT items.

3. There will be no differences between the means of females from the United States and Australia at the high school and college levels in rating PRCA and RAT items.

4. There will be no differences between the means of students from the United States and Australia in rating PRCA and RAT items.

5. There will be no differences between the means for high school and college students, between males and females, between students from the United States and Australia, and no interaction effects on composite PRCA and RAT scores.

Procedures

The sample consisted of 355 students from the United States (133 high school females, 109 high school males, 65 college females and 46 college males) and 339 students from Australia (73 high school females, 91 high school males, 112 college females, and 63 college males). The tests were administered during fall of 1979.*

Instruments

Personal Report of Communication Apprehension

McCroskey's self report instrument, Personal Report of Communication Apprehension (PRCA), was utilized in this study. As indicated in Table 1 items focus on fear of social disapproval in public speaking, dyadic and group communication situations. Thus, oral communication apprehension is more

*High school students from the United States self-selected into oral communication classes and college students are required to take public speaking. Australian students are not required to take oral communication classes. Students from various classroom units were randomly selected to participate in the study.

than stage fright generally associated with public speaking, but refers to a broad-based apprehension about oral communication. The instrument deals with the encoding process of the speaker. The original items were developed from Paul version of Gilkenson PRCS. The items that focus on dyadic and group communication were developed by McCroskey and graduate students. Factor analysis with varimax rotation revealed that 20 items were unidimensional. McCroskey reports that in order to increase the face validity of the PRCA five new items with the highest factor loadings were added to the original instrument to produce a 25-item instrument. Internal reliability estimates for the scale range from .92 to .96 with test-retest reliability over a seven week period of .82.[9] Students who scored 88 or above would be classified as high apprehensive.

Receiver Apprehension Test

Wheeless developed the Receiver Apprehension Test (RAT) by rewording 45 items from the PRCA, PRCS and Test Anxiety Inventory. The items focus on fear of misinterpreting, decoding messages and psychologically adjusting to messages. Wheeless also utilized factor analysis with varimax rotation to determine unidimensional items. The twenty items, as reported in Table II, were unidimensional. The items focus on listening to speakers present instructions, ideas and new information, watching television and dyadic and group communication situations.[10] Students scoring above 70 would be classified as high apprehensives.

Statistical Analysis

Initially, Chi Square analyses were completed for each item across educational levels and between males from the United States and Australia at the high school and college levels, between females from the United States

and Australia at the high school and college levels, and between composite groups from the United States and Australia.

Three-way analysis of variance was completed to determine differences between educational levels, sexes, and countries on composite PRCA and RAT scores. If significant interaction effects occurred, post hoc analyses were completed utilizing the Scheffe' procedure.

Results

The PRCA results reported in Table 3 indicated that significant differences occurred on 12 of the 25 items between high school students and 10 of the 25 items between college students from the United States and Australia. Other results revealed significant differences on 12 items between male high school students, on 8 items between female high school students, on 10 items between male college students, and 16 items between females from the two countries. Overall, significant differences occurred on 13 of the 25 items between students from the two countries.

In Table 4, the RAT results are reported for the two groups. Significant differences occurred on 13 of the 20 items for high school students and 9 of the 20 items for college students from the two countries. Within sex differences: 1) 13 items between high school males, 2) 17 items between high school females, 3) 8 items between college males, and 4) 11 items between college females. Moreover, significant differences occurred on 16 of the 20 items for students from the two countries.

The 3-way analysis of variance on composite PRCA scores revealed significant differences between high school and college students, between males and females, but not between students from the United States and Australia (see Table 5). The interaction analysis indicated significant differences between educational level and country. Post hoc analyses using the Scheffe'

procedure were completed. These results showed significant differences between high school students from the United States and Australia, between high school students from the United States and college students from Australia, between high school students and college students from the United States, and between college students from the two countries (see Table 7).

The RAT results are reported in Table 6. These results indicated significant differences between high school students, between sexes and between countries. There were no significant interaction effects.

The composite means are reported in Table 8. These results indicate that in all comparisons between groups, Australian students have higher RAT scores. Other results showed that males and females from the United States had higher PRCA scores than high school males and females from Australia. At the college level both male and female groups from Australia had higher scores than male and female groups from the United States.

Discussion

The purposes of this study were to determine differences between male and female high school and college students from the United States and Australia in terms of oral communication and listening apprehension. An inductive approach was utilized to determine differences on each item of the PRCA and RAT. This approach also was used to identify high apprehensive items for each group and to determine overall high apprehensive items for students from the two countries.

An examination of Tables 3 revealed significant differences for the various groups. An interpretation of the PRCA high school results revealed that students from the United States had higher PRCA scores than high school

students from Australia. The analyses of individual items revealed that United States high school students were more apprehensive about pre-speech fear, nervous during the speech and group communication situations.* An examination of the raw data and percentages indicated that both United States and Australian high school students were apprehensive about speaking, but were not apprehensive in dyadic and group communication situations.

The within sex analyses at the high school level pointed out that males from the United States experienced more pre-speech anxiety while males from Australia experienced more during speech anxiety. High school females from the two countries were similar in terms of apprehension and were more apprehensive than the males. Females from the United States tended to be a bit more apprehensive in terms of pre-speech and during speech anxiety. Overall, 13.7 percent of high school students from the United States were classififed in the high oral communication apprehension category with scores of 88 or above, while 11.2 percent of Australian high school students suffered from high oral communication apprehension.

An examination of the composite means revealed that high school students were most apprehensive on the following items:

1. While participating in a conversation with a new acquaintance, I feel very nervous.
2. I have no fear of facing an audience.
3. I face the prospect of making a speech with complete confidence.
4. I'm afraid to speak up in conversations.
5. I would enjoy presenting a speech on a local television show.

Overall, college students from both the United States and Australia were less apprehensive than high school students. Unlike the high school data which revealed that the United States students were slightly more apprehensive

*These results might be partially explained as students in Australian public schools at both the elementary and secondary levels have many recitation, and consequently be less apprehensive than United States students.

than Australian students, the college data revealed that Australian students were more apprehensive than United States students. Overall, 8.6 percent of the students from Australia and 6.4 percent from the United States suffer from high communication apprehension. The inductive analyses revealed that students from Australia also were significantly more apprehensive on individual items.*

The analyses indicated Australian male students were more apprehensive on items related to group communication and during public speaking situations than United States male students. Basically, the analyses revealed that males from both countries were moderately apprehensive.

College females from both countries were more apprehensive than male students. Australian female students were more apprehensive on 12 items. These results revealed a more generalized anxiety. For example, female students were apprehensive on pre-speech items, during speech items and group communication items.

An examination of the composite means revealed that college students were most apprehensive on the following items:

1. I have no fear of facing an audience.
2. Although I talk fluently with friends, I am a loss for words on the platform.
3. My thoughts become confused and jumbled when I speak before an audience.
4. I feel self-conscious when I am called upon to answer a question or give an opinion in class.
5. I face the prospect of making a speech with complete confidence.

The combined results for high school and college students from the United States and Australia revealed significant differences between groups on a majority of the items. The results showed that students from the United States had higher mean scores on six of the items while students from

*Communication with Australian teachers revealed that Australian colleges revealed that Australian colleges are more demanding which may create more communication anxiety.

Australia had higher mean scores on seven of the items. As the composite analysis revealed no significant differences occurred between students from the two countries. The initial results appear to support the findings of the Klopf and Cambra study. The Scheffé procedure, however, revealed significant differences between high school students and college students from the United States and Australia. These findings point out that a greater change occurred for American students from the high school to college levels than for Australian students. That is, United States college students score considerably lower than those at the high school level. Scores for the Australian students, on the other hand, remain approximately the same for the high school and college levels.

Past research indicates that high listening apprehension has not been a prevalent problem at the high school or college levels. Past research, however, has not attempted to identify high listening apprehension items or to compare students from different countries on receiver anxiety.[12]

Both the individual item analyses and composite analysis revealed that Australians had greater listening apprehension. The results showed that high school students from Australia were significantly more apprehensive on twelve of the items than students from the United States. These findings, however, should be viewed with caution as for many items a large percentage of students from Australia rated items "2," meaning "agree," whereas, students from the United States rated the items "1," meaning "strongly agree." In addition, a greater percentage of Australian students rated the "don't know," category. High school students from Australia rated the following items high:

2. It is often difficult for me to concentrate on what others are saying.

17. I have difficulty in concentrating on instructions others give me.
10. I often have difficulty in concentrating on what others are saying.
18. It is hard for me to concentrate on what other people are saying unless I know them well.
9. My thoughts become confused and jumbled when reading important information.
15. I generally find it easy to concentrate on what is being said.

The college analyses also revealed that Australian students rated items higher than United States students. Fewer significant differences occurred at the college level. The findings indicated that Australian students were most apprehensive on the following items:

9. My thoughts become confused and jumbled when reading important information.
3. When listening to a member of the opposite sex I find it easy to concentrate on what is being said.
13. When on a date I find myself tense and self-conscious when listening to my date.
17. I often have difficulty in concentrating on instructions others give me.

United States college students were not apprehensive on any of the items.

The listening results indicated that students from both the United States and Australia were basically not apprehensive. Approximately 7 percent of the students from Australia and 5 percent from the United States would be classified as moderately apprehensive. Although students perceived that they are not apprehensive, research is needed to determine if RAT scores would correlate with listening comprehension. Additional studies are needed

to determine why differences exist between students from the two countries. At this point, the listening results can not be generalized to high school and college students from the two countries. Obviously, the study should be replicated utilizing stratified, random sampling procedures.

Overall, the PRCA results of this study reveal significant differences between students from the United States and Australia. These results should be viewed with caution as selection procedures were not identical. Participating students in the United States were all enrolled in oral communication courses while none of the students from Australia were enrolled in oral communication classes. No research has been completed to determine whether or not students who are enrolled in a speech course are more apprehensive during the initial part of the course than they were prior to enrolling in the course. It may be that wider differences exist between students from the two countries or it may be that narrow differences exist. Another variable to examine is whether or not the 25-item PRCA form is unidimensional for Australian students.

Additional research is needed to test the applicability of the propositions generated by McCroskey.[11] He indicates that the extensive research completed with high school, college and adults in the United States appears to support the following propositions:

1. High oral communication apprehensives seek to avoid oral communication.[13]
2. High communication apprehensives engage in less oral communication than do less orally apprehensive people.[14]
3. High communication apprehensives' behaviors differ from those of people who are less apprehensive.[15]

4. High communication apprehension are perceived less positively than less apprehensive people.

A need exists to determine whether similar findings will occur in the Australian culture.

In addition to utilizing PRCA and RAT tests, instruments should be used to determine similarities between students from the two countries. For example, the following research questions might be tests:

1. Do students from the two countries with the same degree of apprehension have similar personaltiy types?
2. Do students with the same degree of apprehension present the same types of comments in a group discussion?
3. Do students with the same types of apprehension have similar unwillingness to communicate scores?

Finally, in both the United States and Australia, longitudinal studies should be completed to determine change that occurs from the high school to college level. It may be that case studies will need to be completed to identify why United States students change more than Australian students from the high school to college level. By building communication links with educators in the United States and Australia, researchers can learn from each other and perhaps through team effort, design methods that will help the apprehensive student.

Footnotes

[1]Charles W. Lomas, "A Study of Stage Fright as Measured by Student Reactions to the Speech Situation," unpublished Master's thesis, Northwestern University, 1934; James H. Henning, "A Study of Stage Fright through a Comparison of Student Reactions and Instructor Observations during the Speech Situation," unpublished Master's thesis, Northwestern University, 1935; Howard Gilkinson, "Social Fears as Reported by Students in College Speech Classes," Speech Monographs, 9 (1942) 141-160.

[2]James C. McCroskey, "Measures of Communication Bound Anxiety," Speech Monographs, 37 (November 1970), 269-277.

[3]John A. Daly, "Communication Apprehension in the Classroom: A Review," paper presented at the Speech Communication Association Convention in Houston, Texas, 1975, 1-13.

[4]Donald W. Klopf and Ronald E. Cambra, "Communication Apprehension Among College Students in America, Australia, Japan, and Korea," The Journal of Psychology, 102 (January 1979), 27-31.

[5]B. C. Hansford, J. Hattie, P. K. Miller, and B.C. Aveyard, "An Assessment of Communication Apprehension in Various Environments," paper presented at the Communication on Developing Oral Communication in Children, Armidale, Australia, 1979, 1-10.

[6]Lawrence R. Wheeless, "An Investigation of Receiver Apprehension and Social Context Dimensions of Communication Apprehension," The Speech Teacher, 24 (September 1975), 261-268.

[7]Rudolph F. Verderber, The Challenge of Effective Speaking, (Belmont, California: Wadsworth Publishing Company, Inc., 1973), p. 11.

[8]Earl E. McDowell and Carlene E. McDowell, "An Investigation of Source and Receiver Apprehension at the Junior High, Senior High, and College Levels," The Central States Speech Journal, 29 (Spring 1978), 11-19.

[9]James C. McCroskey, "Validity of the PRCA as an Index of Oral Communication Apprehension," Communication Monographs, 45 (August 1978, 192-203.

[10]Wheeless, 201-203.

[11]McCroskey, "Validity of the PRCA as an Index of Oral Communication Apprehension," 194-198.

[12]Michael D. Scott and Lawrence R. Wheeless, "Communication Apprehension, Students' Attitude, and Level of Satisfaction," Western Journal of Speech Communication, (Summer 1977), 188-198.

[13]See for example James C. McCroskey and Thomas Leppard, "The Effects of Communication Apprehension on Nonverbal Behavior," paper presented at the Eastern Communication Association, New York, 1975; John A. Daly and James C. MCroskey, "Occupational Desirability and Choice as a Function of Communication Apprehension," Journal of Counseling Psychology, 22 (1975), 309-131; Raymond L. Falcione, James C. McCroskey and John Daly, "Job Satisfaction as a Function of Employees' Communication Apprehension, Self-Esteem, and Perceptions of The Immediate Supervisor," in Communication Yearbook I, ed. Brent D. Ruben, (New Brunswick, N. J.: Transaction, Inc.), 363-374.

[14]See for example, Judith A. Wells and William Lashbrock, "A Study of the Effects of Systematic Desensitization on the Communication Anxiety of Individuals in Small Groups, paper presented at the Speech Communication Association, New Orleans, 1970, Gail A. Sorensen and James C. McCroskey, "The Prediction of Interaction Behavior in Small Groups: Zero History Versus Intact Groups," Communication Monographs, 44 (1977), 73-80; James E. McCroskey, and Virginia P. Richmond, "Communication Apprehension as a Predictor of Self-Disclosure," Communication Quarterly, 25 (1977), 40-43.

[15]See for example, William G. Powers, "The Rhetorical Interrogative: Anxiety or Control?" Human Communication Research, 4 (1977), 44047. Frederick M. Jablin and Lyle Sussman, "An Exploration of Communication and Productivity in Real Brainstorming Groups," Human Communication Research, 4 (Summer 1978), 338-349.

[16]See, for example, James C. McCroskey, John A. Daly, Virginia P. Richmond, and Barbara G. Cox, "The Effects of Communication Apprehension on Interpersonal Attraction," Human Communication Research, 2 (1975), 51-65; Andrew P. Wissmiller and George E. Merker, "Communication Apprehension, Social Distance, and Interpersonal Judgment in Small Groups," paper presented at the Speech Communication Association, San Francisco, 1976; Virginia P. Richmond, "An Investigation of the Relationship between Trait and State Communication Apprehension and Interpersonal Perceptions During Initial and Later Acquaintance Stages of Dyadic Linkages," diss. Nebraska 1977.

Table 1

Personal Report of Communication Apprehension (PRCA)

This instrument is composed of 25 statements concerning your communication with other people. Please indicate the degree to which each statement applies to you by marking whether you (1) Strongly Agree, (2) Agree, (3) are Undecided, (4) Disagree, or (5) Strongly Disagree with each statement.

1. While participating in a conversation with a new acquaintance I feel very nervous.
2. I have no fear of facing an audience.
3. I talk less because I'm shy.
4. I look forward to expressing my opinions at meetings.
5. I am afraid to express myself in a group.
6. I look forward to an opportunity to speak in public.
7. I find the prospect of speaking mildly pleasant.
8. When communicating, my posture feels strained and unnatural.
9. I am tense and nervous while participating in group discussions.
10. Although I talk fluently with friends, I am at a loss for words on the platform.
11. I have no fear about expressing myself in a group.
12. My hands tremble when I try to handle objects on the platform.
13. I always avoid speaking in public if possible.
14. I feel that I am more fluent when talking to people than most other people.
15. I am fearful and tense all the while I am speaking before a gorup of people.

16. My thoughts become confused and jumbled when I speak before an audience.

17. I like to get involved in group discussions.

18. Although I am nervous just before getting up, I soon forget my fears and enjoy the experience.

19. Conversing with people who hold positions of authority causes me to be fearful and tense.

20. I dislike to use my body and voice expressively.

21. I feel relaxed and comfortable while speaking.

22. I feel self-conscious when I am called upon to answer a question or give an opinion in class.

23. I face the prospect of making a speech with complete confidence.

24. I'm afraid to speak up in conversations.

25. I would enjoy presenting a speech on a local television show.

Table 2

Receiver Apprehension Test (RAT)

The following statements apply to how various people feel about receiving communication. Indicate which of these statements apply to how you feel by noting whether you (1) Strongly Agree, (2) Agree, (3) Undecided, (4) Disagree, or (5) Strongly Disagree.

1. I feel comfortable when listening to others on the phone.
2. It is often difficult for me to concentrate on what others are saying.
3. When listening to members of the opposite sex, I find it easy to concentrate on what is being said.
4. I have no fear of being a listener as a member of an audience.
5. I feel relaxed when listening to new ideas.
6. I would rather not have to listen to other people at all.
7. I am generally overexcited and rattled when others are speaking to me.
8. I often feel uncomfortable when listening to others.
9. My thoughts become confused and jumbled when reading important information.
10. I often have difficulty concentrating on what others are saying.
11. Receiving new information makes me feel restless.
12. Watching television makes me nervous.
13. When on a date I find myself tense and self-conscious when listening to my date.
14. I enjoy being a good listener.
15. I generally find it easy to concentrate on what is being said.
16. I seek out the opportunity to listen to new ideas.
17. I have difficulty concentrating on instructions others give me.
18. It is hard to listen or concentrate on what other people are saying unless I know them well.
19. I feel tense when listening as a member of a social gathering.
20. Television programs that attempt to change my mind about something make me nervous.

Table 3

PRCA Chi Square Analyses for Same Sex Subjects from Australia and United States

| | High School | | | College | | | Composite |
|---|---|---|---|---|---|---|---|
| Items | H.S. | M | F | Col. | M | F | U.S. vs. Australia |
| 1 | | x | | x | x | x | |
| 2 | x | x | x | | | x | x |
| 3 | x | x | x | | | | x |
| 4 | | | | x | | x | |
| 5 | | x | | | x | | x |
| 6 | x | x | x | x | | | |
| 7 | x | | x | | | x | |
| 8 | | x | | | | x | x |
| 9 | | | | x | | x | x |
| 10 | x | | | x | | x | |
| 11 | x | | | | | x | x |
| 12 | x | x | | | | | x |
| 13 | | | | x | x | x | |
| 14 | x | x | | | x | x | |
| 15 | x | x | x | x | x | x | x |
| 16 | | | | x | | x | |
| 17 | | | | | | x | |
| 18 | x | x | x | | | | x |
| 19 | x | x | x | | | x | x |
| 20 | | | | | x | | x |
| 21 | x | x | | x | x | | |
| 22 | | | | | | x | |
| 23 | x | | x | x | x | | x |
| 24 | | | | | x | | x |
| 25 | | | | | | | |

Table 4

RAT Chi Square Analyses for Same Sex Subject from Australia and United States

| | High School | | | College | | | Composite |
|---|---|---|---|---|---|---|---|
| Items | H.S. | M | F | Col. | M | F | U.S. vs. Australia |
| 1 | | x | | x | x | x | x |
| 2 | x | x | x | x | x | x | x |
| 3 | x | | | | | | |
| 4 | x | x | x | x | x | | x |
| 5 | x | x | | | | x | x |
| 6 | | x | | | | x | x |
| 7 | x | x | x | x | x | x | |
| 8 | x | x | x | x | x | | x |
| 9 | x | | x | | x | x | x |
| 10 | x | x | x | x | x | | x |
| 11 | | x | | | | | x |
| 12 | | x | | | | x | x |
| 13 | x | x | x | x | x | | x |
| 14 | | x | | | | | |
| 15 | x | x | x | | | | x |
| 16 | x | x | x | x | | | x |
| 17 | | | x | | | x | |
| 18 | | x | | | | x | |
| 19 | x | x | x | | x | x | x |
| 20 | x | x | x | x | | | x |

x Significant at $<.01$ level

Table 5

3-Way Analysis of Variance on PRCA Scores

| Sources of Variation | df | Mean square | F | d |
|---|---|---|---|---|
| Educational Levels | 1 | 2205.5 | 10.01 | .002 |
| Sex | 1 | 2546.5 | 11.56 | .001 |
| Country | 1 | 3.0 | .01 | .908 |
| 2-way Interaction | | | | |
| Education level x sex | 1 | 770.8 | 3.49 | .06 |
| Education level x country | 1 | 1315.6 | 5.97 | .01 |
| Sex x country | 1 | 11.1 | .06 | .82 |
| 3-way Interaction Educational level x sex x country | 1 | 15.3 | .07 | .79 |

Table 6

3-Way Analysis of Variance on RAT Scores

| Sources of Variation | df | Mean Square | F | d |
|---|---|---|---|---|
| Educational Level | 1 | 1043.6 | 26.272 | .001 |
| Sex | 1 | 1800.7 | 5.046 | .025 |
| Country | 1 | 344.8 | 18.986 | .001 |
| 2-way interaction | | | | |
| Educational level x sex | 1 | 66.1 | .968 | .326 |
| Educational level x country | 1 | 2.2 | .033 | .857 |
| Sex x country | 1 | 8.3 | .122 | .727 |
| 3-way interaction Educational level x sex x country | 1 | 6.8 | .101 | .751 |

Table 7

Multiple Comparisons (Scheffe) of the PRCA Mean Scores

| Contrast | f | d |
|---|---|---|
| HS U.S. vs HS Aus. | 13.26 | .001 |
| HS U.S. vs C U.S. | 60.51 | .001 |
| HS U.S. vs C. Aus. | 14.13 | .001 |
| C U.S. vs C Aus. | 16.64 | .001 |

Table 8

Means on RAT and PRCA

| Education | Sex | Country | RAT | PRCA |
|---|---|---|---|---|
| H.S. | Male | U.S. | 44.25 | 75.45 |
| H.S. | Female | U.S. | 43.22 | 77.55 |
| H.S. | Male | Aus. | 46.86 | 72.90 |
| H.S. | Female | Aus. | 46.15 | 74.30 |
| Col. | Male | U.S. | 40.69 | 65.04 |
| Col. | Female | U.S. | 39.36 | 72.23 |
| Col. | Male | Aus. | 44.34 | 68.63 |
| Col. | Female | Aus. | 42.03 | 75.95 |